

IN THE CLAIMS:

The following is a complete listing of the claims in this application, reflects all changes currently being made to the claims, and replaces all earlier versions and all earlier listings of the claims:

Claims 1 - 30. (Canceled).

Claim 31. (Currently Amended) A method of driving a solid image pickup device comprising a photoelectric conversion unit, a charge-voltage conversion unit for converting electric charges from the photoelectric conversion unit into voltage signals, a signal amplification means for amplifying the voltage signals generated in the charge-voltage conversion unit, and a charge transfer means for transferring photoelectric charges from the photoelectric conversion unit to the charge-voltage conversion unit, said method comprising the steps of:

transferring electric charges generated in the photoelectric conversion unit during one accumulation period to the charge-voltage conversion unit by the charge transfer means.

wherein the transferring step comprises a first transferring step and a second transferring step, a first signal is read out on a basis of electric charges transferred by the first transferring step, the charge-voltage conversion unit is reset after the first signal is read out, and a second signal is read out on a basis of electric charges transferred by the second transferring step after the charge-voltage conversion unit is reset.

performing a primary transfer operation to transfer at least a part of the photoelectric charges accumulated in the photoelectric conversion unit during a charge accumulation period, from the photoelectric conversion unit to the charge-voltage conversion unit; and

performing at least one other transfer operation, prior to a subsequent charge accumulation period, to transfer remaining photoelectric charges from the photoelectric conversion unit to the charge-voltage conversion unit, wherein the photoelectric conversion unit is not reset prior to the at least one other transfer operation.

Claim 32. (Currently Amended) The method of driving a solid image pickup device according to claim 31, wherein output signals read out from the charge-voltage conversion unit following the first transferring step primary transfer operation and the at least one second transferring step other transfer operation are retained, respectively, and added, and a resulting summed output signal is outputted from a horizontal scan circuit to a common output line.

Claim 33. (Currently Amended) The method of driving a solid image pickup device according to claim 31, wherein after the first transferring step primary transfer operation and before the at least one second transferring step other transfer operation, at least one intermediate readout operation is performed by resetting the charge-voltage conversion unit and reading out an output signal amplified by the amplification means to a signal output line.

Claim 34. (Currently Amended) A solid image pickup device comprising:

a photoelectric conversion unit;

a charge-voltage conversion unit for converting electric charges from the photoelectric conversion unit into voltage signals;

a signal amplification means for amplifying the voltage signals generated in the charge-voltage conversion unit;

a charge transfer means for transferring photoelectric charges from the photoelectric conversion unit to the charge-voltage conversion unit; and

a control circuit for controlling the solid state image pickup device to perform a transferring step for transferring electric charges generated in the photoelectric conversion unit during one accumulation period to the charge-voltage conversion unit by the charge transfer means.

wherein the transferring step comprises a first transferring step and a second transferring step, a first signal is read out on a basis of electric charges transferred by the first transferring step, the charge-voltage conversion unit is reset after the first signal is read out, and a second signal is read out on a basis of electric charges transferred by the second transferring step after the charge-voltage conversion unit is reset.

~~a control circuit for controlling the solid image pickup device to perform a primary transfer operation to transfer at least a part of the photoelectric charges accumulated in the photoelectric conversion unit during a charge accumulation period, from the photoelectric conversion unit to the charge-voltage conversion unit, and to perform at least one other transfer operation, prior to a subsequent charge accumulation~~

~~period, to transfer remaining photoelectric charges from the photoelectric conversion unit to the charge-voltage conversion unit, and wherein the photoelectric conversion unit is not reset prior to the at least one other transfer operation.~~

Claim 35. (Previously Presented) The solid image pickup device according to claim 34, wherein the photoelectric conversion unit is an embedded-type photodiode.

Claim 36. (Previously Presented) An image pickup system comprising:  
a solid image pickup device according to 34;  
an optical system for focusing a ray of light to the solid image pickup device; and  
a signal processing circuit for processing output signals from the solid image pickup device.

Claim 37. (Previously Presented) An image pickup system comprising:  
a solid image pickup device according to 34;  
an optical system for focusing a ray of light to the solid image pickup device;  
a mechanical shutter for determining an exposure time of the solid image pickup device; and  
a signal processing circuit for processing output signals from the solid image pickup device.